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# The Civil Air Patrol: History And Frequencies

*One of several types of aircraft used by the Civil Air Patrol, this GA-8 "Airvan" served in disaster assessment and relief efforts after Hurricane Rita. (Photo courtesy U.S. Air Force via Air Force Link)*

The largest military auxiliary organization in the United States today, the Civil Air Patrol (CAP), has an interesting and varied history, with duties ranging from civil defense during World War II to drug interdiction and Homeland Security today.

CAP had its beginning just before World War II, when local groups in New York and New Jersey formed the organization for the purpose of patrolling from the air. Getting into high gear after the attack on Pearl Harbor, CAP's initial purpose was patrolling our shores by air using civilian volunteers, with "sub-chasers" operating from bases along the U.S. East and Gulf coasts.

Formally organized as the Auxiliary of the Army Air Forces in 1943, CAP units continued to serve in the interest of civil defense, flying cover for airports, coasts, and borders in search of infiltrators, as well as patrolling power lines, forests, and other strategic assets. CAP planes also flew as targets for anti-aircraft gunner and searchlight trainees by towing target sleeves for gunners to shoot. They flew many courier missions and provided valuable search and rescue operations, looking for downed aircraft.

After the war, CAP became the Auxiliary of the U.S. Air Force when it was made a separate service in 1947. CAP continued its civil defense function during the Cold War, even serving as satellite tracking targets after the Soviet Union launched Sputnik in 1957. The search and rescue function begun during the war continued, and today it's CAP's most well-known service.

## CAP Today

CAP today is a non-profit organization with over 58,000 members and 27,000 cadets. Divided into eight regions, CAP is headquartered at Maxwell Air Force Base, Alabama, as part of the U.S. Air Force Homeland Security Directorate. It regularly provides many of the same functions it has offered since World War II, with additional functions including aerial security for major events, drug interdiction, and transportation of time-sensitive medical supplies.

Using high-wing aircraft from a variety of manufacturers like Cessna, CAP can fly visual search patterns with direction-finding emergency locator beacon receivers and provide slow-scan video and digital images to ground units. These functions are also valuable for disaster response, traffic control during major events, or for homeland security purposes.

## An Extensive Comms Network

CAP boasts the nation's most extensive communications network. Using frequencies allocated for government use, CAP assets vary, but they include over 1,000 HF radio stations (fixed, mobile, and portable), over 500 VHF repeaters (fixed, portable/mobile, and airborne), over 4,000 VHF radios, more than 200 emergency generators, and nearly 100 emergency command vehicles. In **Table 1**, you'll find a listing of nationwide CAP frequencies, condensed from an official CAP document available (until recently) on the Internet, listing all CAP frequencies and their uses.

As part of the NTIA-mandated narrow-banding of federal government radio systems, CAP is currently in the midst of a project to upgrade all of its communications systems to narrowband standards. To this end, it has been purchasing new E.F. Johnson Project-25 compliant radios. It is unknown if CAP will continue to use analog systems or will shift to use of P25 exclusively, so keep your digital scanners tuned.

## CAP Frequencies—Classified?

An interesting recent development was the decision at higher levels to make CAP radio frequencies classified, protected information that will henceforth be withheld from public access.

*U.S. Army soldiers using a typical backpack-style radio with a folded "tape" antenna while on a security patrol in Bosnia and Herzegovina. (Photo courtesy Department of Defense via DefenseLink)*

This has led to a great deal of spirited discussion in the monitoring community, with adherents to both sides of the argument. One school of thought holds that "if it passes through my house/body/car/scanner and is unencrypted, it's fair game." Another school of thought holds that "we, as patriotic scannists should withhold the information and remove it from our webpages." This debate has been raging for years and now has a new dimension.

So, keep that in mind and keep your CAP frequency lists where you can find them. Even though there are still lists of these frequencies in many locations on the Web, they have already disappeared, or will disappear soon, from official CAP sites. It's also possible, although unlikely, that if someone at CAP really gets hot under the collar they could attempt to force private citizens to remove these frequencies from personal webpages. Stay tuned for more on this debate.

## U.S. Army/Marine Corps Tactical Communications

Are low band frequencies vanishing from your area? Do you think that low band is out of style? Guess again.

While the most popular monitoring target for scannists is the UHF military aviation band, don't overlook low band. VHF low band is used every day by the military, especially for tactical communications by ground forces. Low band has certain advantages in that it shares characteristics of both the HF and VHF bands. Transmission range is typically greater than that found at 100 MHz and above, yet antennas are short enough to be practical for portability.

Low band has another interesting characteristic: signals travel considerable distances when atmospheric conditions are right. Commonly known as "skip," this characteristic of low-VHF radiowaves enables us to hear signals from quite a distance. It is not unusual to monitor low-VHF transmissions from as far away as 1,000 miles when conditions are right, and reception out to

### Table 1. Civil Air Patrol Nationwide

| | |
|---|---|
| 2.37100 | Voice/Data |
| 2.37400 | Voice/Data |
| 4.46600 | Voice/Data |
| 4.46900 | Voice/Data |
| 4.50600 | Voice/Data |
| 4.50900 | Voice/Data |
| 4.58200 | Nationwide Calling |
| 4.58500 | Voice/Data |
| 4.60100 | Voice/Data |
| 4.60400 | Voice/Data |
| 4.62700 | Voice/Data |
| 4.63000 | Voice/Data |
| 7.34100 | Data |
| 7.63500 | Nationwide Calling (Voice/Data) |
| 7.92000 | Voice/Data |
| 14.9020 | Voice/Data |
| 18.2050 | Voice/Data |
| 20.8730 | Voice/Data |
| 26.6170 | Voice/Data |
| 26.6000 | Search and Rescue (AM) |
| 26.6100 | Search and Rescue (AM) |
| 26.6200 | Search and Rescue (AM/USB) |
| 38.5000 | Aircraft Ops |
| 41.7000 | Aircraft Ops |
| 119.3500 | Calling (AM) |
| 120.8500 | Search and Rescue Intersystem (AM) |
| 121.6000 | Emergency Beacon Practice (AM) |
| 121.7750 | Emergency Beacon Practice (AM) |
| 122.0000 | Flight Watch Nationwide Channel (AM) |
| 122.7000 | Glider Ops (AM) |
| 122.8000 | Glider Ops (AM) |
| 122.9000 | Government Aircraft ops (AM) |
| 123.1000 | Search and Rescue (AM) |
| 123.4500 | Aircraft Calling (AM) |
| 143.7750 | Search and Rescue |
| 143.9500 | Search and Rescue |
| 148.1250 | F2 Operations Repeater (input 143.750) |
| 148.1375 | F3 Operations Simplex |
| 148.1500 | F1 Operations Repeater (input 143.900) |
| 148.5375 | Search and Rescue |
| 148.9750 | Search and Rescue |
| 149.5375 | F4 Operations Simplex |
| 149.5375 | Search and Rescue |
| 149.9000 | F1 Data (1200-baud Packet) |
| 149.9250 | F2 Data (1200-baud Packet) |
| 163.1250 | Flight Line |
| 163.1500 | Flight Line |
| 419.6375 | Urban Search and Rescue |
| 419.6875 | Urban Point-to-Point |
| 419.9875 | Low-power Point-to-Point |

Note:
1. All HF frequencies are USB, others FM unless noted.
2. Frequencies noted as "Data" use either 300-baud (HF) or 1200-baud (VHF) packet.
3. Some frequencies may be shared with other government users.
4. VHF operations frequencies F1–F4 use CTCSS tone 100.0 Hz.

**Table 2. Military Low Band**

30–30.56 MHz
32–33 MHz
34–35 MHz
36–37 MHz
38–38.25 MHz
38.25–39 MHz
40–42 MHz
46.6–47 MHz
49.6–50 MHz

100 miles or more occurs fairly often. This kind of skip is generally best in June and December, with June being particularly good. However, don't think that you won't hear skip at other times as well—skip caused by tropospheric ducting can happen anytime.

## Military Radios: Here's What They Use

Radios used by Army and Marine Corps ground units include handheld models with limited range (typically used for intersquad communications) and the well-known and often seen backpack radios with a range of up to 25 miles.

The most commonly seen model has been the PRC-77, which is an all-solid-state, synthesized transceiver with frequency coverage from 30 to 76 MHz in 50-kHz steps. Introduced during the Vietnam War, the PRC-77 was the standard tactical radio used by the U.S. military for over 30 years. Generally carried with a "tape" antenna, which can be unfolded to 30 inches or so, the PRC-77 remains in wide use around the world because it's rugged yet easy to operate. The PRC-77 and it's short-lived predecessor, the PRC-25, introduced the use of the 150-Hz CTCSS squelch tone (known as "new squelch") to reduce interference problems.

Although some PRC-77 models are still used by National Guard and Reserve units, they have mostly been replaced by the PRC-119 SINCGARS (SINgle Channel Ground and Air Radio System). SINCGARS radios offer the ability to frequency hop to avoid interception or interference, and newer models include digital encryption to provide further security. The PRC-119 covers 30 to 88 MHz in 25-kHz steps, with the same 150-Hz CTCSS tone as the earlier PRC-77 and 25.

Army ground units may also carry UHF backpack radios like the dual-band PRC-113, which covers both the 116- to 150-MHz and 225- to 400-MHz bands. These radios are used by Forward Air Controllers to communicate with aviation assets flying ground attack missions.

In addition to being carried backpack-style in the field, the PRC-77 and PRC-119 radios also have a variety of accessories, such as mobile mounts, longer antennas, and power amplifiers, that allow them to be used as mobile or fixed-station radios, with a corresponding improvement in range.

**Table 2** contains the general frequency ranges in which military low-VHF communications are most often heard.

## Got A Topic Idea?

That's all for this issue. Remember, if you have an idea or request for a specific military monitoring topic, drop me a line at the e-mail address above. See you again in August! ■


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